Engineering Interpretations

Construction Material and Excavating

Soils are rated as sources for road fill, topsoil, sand, and gravel. Suitability ratings of good, fair, or poor are given for soils used as a source of road fill and topsoil. Ratings of probable and improbable are given for sand and gravel. A rating of probable means that on the basis of the available evidence, the source material is likely to be in or below the soil. A rating of improbable means that the source material is unlikely to be in or below the soil. The ratings for sand and gravel do not consider the quality of the source material because quality depends on how the source material is to be used.

Road Fill

Road fill consists of soil material that is excavated from its original position and used in road embankments elsewhere. The evaluations for road fill are for low embankments that generally are less than 6 feet in height and are less exacting in design than high embankments such as those along superhighways. The rating is given for the whole soil, from the surface to a depth of about 5 feet, based on the assumption that soil horizons will be mixed in loading, dumping, and spreading. Soils are rated as to the amount of material available for excavation, the ease of excavation, and how well the material performs after it is in place.

Sand

Sand as a construction material is usually defined as particles ranging in size from 0.074 mm (sieve #200) to 4.75 mm (sieve #4) in diameter. Sand is used in great quantities in many kinds of construction. Specifications for each purpose vary widely. The intent of this rating is to show only the probability of finding material in suitable quantity. The suitability of the sand for specific purposes is not evaluated. If the lowest layer of the soil contains sand, the soil is rated as a probable source regardless of thickness. The assumption is that the sand layer below the depth of observation exceeds the minimum thickness.

Gravel

Gravel as a construction material is defined as particles ranging in size from 4.76 mm (sieve #4) to 76 mm (3 inches) in diameter.

Gravel is used in great quantities in many kinds of construction. Specifications for each purpose vary widely. The intent of this rating is to show only the probability of finding material in suitable quantity. The suitability of the gravel for specific purposes is not evaluated. If the lowest layer of the soil contains gravel, the soil is rated as a probable source regardless of thickness. The assumption is that the gravel layer below the depth of observation exceeds the minimum thickness.

Topsoil

The term "topsoil" has several meanings. As used here, the term describes soil material used to cover an area so as to improve soil conditions for establishment and maintenance of adapted vegetation. Generally, the upper part of the soil, which is richest in organic matter, is most desirable; however, material excavated from deeper layers is also used. In this rating, the upper 40 inches of soil material is evaluated for use as topsoil. In the

borrow area, the material below 40 inches is evaluated for its suitability for plant growth after the upper 40 inches is removed. The soil properties that are used to rate the soil as topsoil are those that affect plant growth, the ease of excavation, loading, and spreading, and those that affect the reclamation of the borrow area.

This subsection includes:

- **(a) Construction Materials and Excavating**

Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
66000:				
Moniteau	Poor: low strength, wetness	Improbable: excess fines	Improbable: excess fines	Poor: wetness
70006:				
Creldon	Poor: low strength, shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, too clayey
70020:				
Blueye	Poor: low strength, shrink-swell, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones, too clayey
70021:				
Moko	Poor: large stones, slope, depth to rock	Improbable: large stones, excess fines	Improbable: large stones, excess fines	Poor: large stones, slope, depth to rock
70022:				
Tonti	Fair: low strength, shrink-swell, wetness	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, small stones
71250, 71251:				
Britwater	Fair: low strength, shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: area reclaim, too clayey
73000:				
Pomme	Fair: low strength, shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: area reclaim, too clayey
73007:				
Plato	Poor: low strength, shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, too clayey
73010:				
Wilderness	Fair: low strength, shrink-swell	Improbable: small stones, excess fines	Improbable: excess fines	Poor: area reclaim, small stones
73013:				
Lowassie	Poor: low strength, shrink-swell, wetness	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, wetness
73014:				
Clarksville	Good	Improbable: small stones, excess fines	Improbable: excess fines	Poor: area reclaim, small stones

Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
73015, 73016:				
Viraton	Fair: shrink-swell wetness	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones
73017:				
Bendavis	Poor: slope depth to rock	Improbable: small stones excess fines	Improbable: excess fines	Poor: slope small stones
Poynor	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
73018:				
Clarksville	Poor: slope	Improbable: small stones excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
73019, 73020:				
Poynor	Fair: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: small stones
73021:				
Poynor	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
73022:				
Alred	Poor: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: small stones
Bardley	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey
73023, 73024:				
Mano	Poor: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey
Ocie	Poor: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey
73025, 73026:				
Gatewood	Poor: low strength shrink-swell depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey
Ocie	Poor: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey

Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
73027:				
Gatewood	Poor: low strength, shrink-swell, slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones, too clayey
Ocie	Poor: low strength, shrink-swell, slope	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones, too clayey
73028:				
Rueter	Poor: slope	Improbable: small stones, excess fines	Improbable: excess fines	Poor: area reclaim, slope, small stones
Bardley	Poor: shrink-swell, slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, too clayey
73029:				
Gasconade	Poor: large stones, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones, too clayey, depth to rock
Gatewood	Poor: low strength, shrink-swell, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones, too clayey
Rock outcrop.				
73030:				
Gasconade	Poor: large stones, slope, depth to rock	Improbable: large stones, excess fines	Improbable: large stones, excess fines	Poor: large stones, slope, too clayey, depth to rock
73032:				
Gatewood	Poor: large stones, low strength, shrink-swell, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones, too clayey
73033:				
Gatewood	Poor: large stones, low strength, shrink-swell, slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones, too clayey
73051:				
Winnipeg	Fair: low strength, shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: area reclaim, too clayey

Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
74626: Tanglenook	Poor: low strength, shrink-swell, wetness	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, wetness
74627: Hartville	Poor: low strength, shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
75377: Racket	Good	Improbable: excess fines	Probable	Fair: area reclaim
75379: Kaintuck	Good	Improbable: excess fines	Improbable: excess fines	Fair: area reclaim, too sandy
75380: Dapue	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Good
75381: Bearthicket	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Good
75382, 75383: Cedargap	Good	Improbable: excess fines	Probable	Poor: area reclaim, small stones
99000. Pits, quarries				
99001. Water				
99002. Orthents, borrow area, clayey				